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ABSTRACT

This study sought to determine whether kindergarten students in a "twenty-first century classroom" would have a greater gain in concept age than students in a traditional kindergarten classroom. Subjects were students, randomly assigned, in two kindergarten classrooms. The twenty-first century classroom incorporates five computers into the required centers to be completed daily by each student. The traditional kindergarten classroom uses the same daily center plans; however, the two computers in this classroom are used for free exploration and play after the other centers have been completed. Both the treatment (computer) and the control (traditional) groups were given the Bracken Basic Concept Scale test as a pretest, and 6 weeks later as a posttest. Statistical analysis of the data revealed a significant difference between the gain scores of the control group and the gain scores of the treatment group. Findings indicated that kindergarten students involved in daily, structured computer activities have a more significant increase in concept age than those kindergarten students in a more traditional setting. (Contains 52 references.) (Author/EV)

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ED 443 523

A COMPARISON OF CONCEPT AGE GAINS OF KINDERGARTEN CHILDREN IN TRADITIONAL AND TWENTY-FIRST CENTURY CLASSROOMS

A Research Project Presented to

The Department of Teacher Education

Of Johnson Bible College

In Partial Fulfillment

of the Requirement for the Degree

Master of Arts in

Educational Technology and Bible

By

Patricia W. Grubb

April 2000

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APPROVAL PAGE

This Research Project by Patricia W. Grubb is accepted in its present form by the Department of Teacher Education at Johnson Bible College as satisfying the research project requirements for the degree Master of Arts in Educational Technology and Bible.

Chairperson, Examining Committee

Member, Examining Committee

Member, Examining Committee

Member, Examining Committee

May 5, 2000
Date

ABSTRACT

The purpose of this study was to determine whether Kindergarten students in a Twenty-First Century classroom have a greater concept age gain than students in a traditional Kindergarten classroom.

Two Kindergarten classrooms, to which students were randomly assigned, are the subjects of this study. The Twenty-First Century Kindergarten classroom incorporates five computers into the required centers to be completed daily by each student. The traditional Kindergarten classroom uses the same daily center plans, however, the two computers in this classroom are used for free exploration and play after the other centers have been completed.

Both groups, the treatment (computer) and the control (traditional), are given the Bracken® Basic Concept Scale test as the pretest, and then six weeks later, as the posttest.

The differences in the pretest and posttest scores of the Twenty-First Century Kindergarten classroom are compared to the differences in the pretest and posttest scores of the Traditional Kindergarten classroom. The statistical analysis of this project focused on the mean scores of the two groups.

In analyzing the data for this project, there was a statistically significant difference between the gain scores of the control group and the gain scores of the treatment group. The results indicate that Kindergarten students involved in daily, structured computer

activities have a more significant increase in concept age gains than those Kindergarten students in a more traditional setting.

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I express my profound gratitude to my professors, Dr. Beam, Dr. Ketchen, Dr. Templar, and Dr. Syester, for their continuing guidance and support throughout this research project.

I wish to thank my family and friends for all of their patience with me and continuing encouragement. I want to thank my sister, Millie Dunkel, and my mom, Jean Wheeler, for their willingness to proofread all of the research and papers involved.

I want to dedicate this project as well as my graduate degree, to the memory of my father, William B. Wheeler, who passed away September 12, 1999. Without his constant faith in me, unconditional love and support, this journey would never have begun.

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Chapter 1

INTRODUCTION

Significance of the Problem

Many students entering Kindergarten have a concept age well below their chronological age. The results of a national survey of more than 7000 Kindergarten teachers conducted by the Carnegie Foundation for the Advancement of Teaching found that more than a third, 35% of all entering kindergarten students were judged as not ready for school (Espinosa, 1997). The attainment of these basic concepts is key to being able to function successfully in the regular classroom. This poses a serious problem for kindergarten teachers who must attempt to make up this lapse of concept knowledge by creating a learning environment that will facilitate success for all students. It is the belief of this researcher that the use of technology at an early stage of concept attainment, will greatly enhance this learning environment. The significance of this study is to find out if students in Kindergarten have a greater concept age gain when placed in a computer enhanced classroom rather than a Traditional Kindergarten classroom.

Statement of the Problem

The focus of this study is to observe the effects of a technology rich environment on students entering kindergarten. The purpose of this study will be to see if there is any difference in concept age gains of children in a Traditional Kindergarten classroom and a Twenty-first Century Kindergarten classroom using the Bracken Basic Concept Scale as the measurement tool.

Definition of Terms

Concept age. For the purpose of this study, concept age is the Bracken test's measurement score of a child's ability to recognize increasingly difficult concepts. This score is used to establish a conceptual understanding age that can range from two years six months through seven years eleven months thirty days.

Twenty-first Century Classroom. This is a computer enriched classroom funded by a state grant that originated during the 1993-94 school year. Each classroom was allowed to purchase $20,000.00 in hardware and software. One stipulation was that at least $2,000.00 had to be spent on software. Some teachers were chosen for this classroom by writing a proposal about how this technology would be used to enhance the classroom curriculum. The teacher in this study was selected by a written proposal process.

Bracken® Basic Concept Scale Test. The BBCS test was developed by Bracken in 1984, after five years of research, to measure a child's receptive vocabulary (basic concepts) and to identify concepts and conceptual categories that can be problematic for students. It can be used as both an assessment instrument and a remedial plan. The scores can be used to determine a child's concept age (ranging from two years, six months, to seven years, eleven months). The test is appropriate for students from five

years to seven years old. It is primarily designed for use with kindergarten and first grade children.

Limitations

There are limitations in this study due to the small sample size and the population specific to this elementary school. The researcher observed two different kindergarten classes, the traditional classroom which has eighteen students and the Twenty-First Century classroom which has seventeen students.

Assumptions

There are two assumptions made in this study. There is the assumption that both Kindergarten teachers are equally competent. Both are experienced teachers with excellent evaluations. The two teachers in this study develop their lesson plans together, each class participating in identical center activities (disregarding the computer centers in the Twenty–First Century Classroom). There is also the assumption that the two classes are of equal ability.

Null Hypothesis

There will be no significant difference at the .05 level in the concept age gains in the Traditional Kindergarten Classroom and the Twenty-First Century Kindergarten Classroom.

Chapter 2

REVIEW OF RELATED LITERATURE

The Need for School Readiness

In 1994, the U.S. Congress and President Clinton enacted the Goals 2000 Educate America Act. Goal 1 proposes that by the year 2000, all children in America will start school ready to learn. The fact that this is Goal 1 indicates the enormous lack of school readiness that is prevalent across our country. Although this goal has not been attained, it is an admirable expectation because it can be shown that a child's readiness in kindergarten is strongly related to future academic success and the completion of education (Espinosa, p. 119).

Not many years ago, kindergartens were an optional preschool program. Now, however, most North American children attend these programs as a part of the regular school program. In the present day school system, students enter the formal school kindergarten setting when their fifth birthday is before September 30. By using age alone as a readiness factor, a huge gap in the readiness level of these students appears, especially in inner-city schools where many students' preschool learning is limited. Studies show that chronological age alone is not a factor in success in kindergarten (Nurss, p. 1). There appears to be a hidden assumption that all children enter the school setting with similar experiences and that they have developed cognitive skills by exploring their environments, enabling them to respond appropriately to adult instructions. Some of these students have had prior day care or preschool experiences, but many are entering a

structured school setting for the first time. The cognitive skills of children with less school experience may not be sufficient to meet the needs of the new, in-school situation (McGinnis, p.4).

Basic concepts constitute much of the preschool and primary curriculum. While a child low in intelligence cannot be taught directly to be more intelligent, a child low in conceptual knowledge can and should be taught the basic concepts that he or she does not understand (Bracken, 1984). Concepts are the fundamental agents of intelligence, the basic building blocks of thought (Kagan, 1966). According to Boehm, who developed the Boehm Test of Basic Concepts (Boehm, 1971), fewer than half of the kindergarten children from low-socioeconomic backgrounds in her standardized sample knew the following basic concepts: row, side, beginning, other, alike, never, below, match, always, medium-sized, right, left, zero, above, separated, pair, skip, equial, in order, third, and least. It is often presumed that children know these concepts; however, if they do not, it would be virtually impossible for the student to succeed in following the classroom teacher's simplest directions that would include one or more of these words. Educators must pursue strategies to effectively bridge this gap in lack of readiness upon entering school.

Theories on Concept Development

Differing views exist concerning the way cognitive development occurs in children. Piaget's studies of children's intellectual growth, the development of thinking, knowing,

perceiving, remembering, recognizing, abstracting, and generalizing, support his belief that a child's mental development occurs in neat successive stages that cannot be hurried. The succession of the four stages is the following: (1) Sensorimotor stage (birth to eighteen months or two years). This is the stage in which the child gains motor control and learns about physical objects. (2) Symbolic or preconcrete-operational stage (eighteen months to seven or eight years). The child is preoccupied with verbal skills. (3) Concrete operations (seven or eight to twelve years). The child begins to deal with abstract concepts. (4) Formal operations (twelve to fifteen years). The child begins to reason logically and systematically (Bigge, p. 18). Piaget's theory of specific periods of cognitive development discourages skills such as reading and writing being expected before the concrete operational stage.

Piaget recommended that kindergarten teachers look at a child who is not succeeding in activities that are expected of them, and see at what developmental level he/she is operating. In this way, Piaget suggested that the teacher can observe and provide opportunities to correct the deficiencies in a child's perception (Pulaski, p. 111).

Another major contribution of Piaget's work is the now widely accepted recognition that young children actively construct their own understanding of concepts. Most studies agree that human cognition unfolds basically in the sequence that Piaget proposed; however, these studies show that cognitive abilities overlap the previous stage. Piaget did establish that young children are cognitively not ready to think abstractly.

They learn best through active, hands on activities with concrete materials. Piaget insisted that children be allowed to do their own learning.

Bruner, a cognitive learning and developmental psychologist, is convinced that any concept can be presented to most children in an intellectual, respectable manner regardless of age. He feels that steps in mental growth occur in spurts in human development and learning rather than in a gradual process. Bruner's theory is that instruction should aim to give students a firm grasp of their subjects in such a way to promote students being autonomous and self-propelled thinkers who will proceed to learn on their own (Bigge, p. 123-142).

Montessori (1870-1952) became interested in educating the mentally retarded children in Rome. Her techniques and materials were so effective that many of her pupils learned to read and write almost as well as the normal children who attended schools for the poor. Montessori's theory emphasized the development of cognition through freedom and individual development at a child's own pace, not at a specific age. (Lefrancois, p.352-355).

Piaget, Bruner, and Montessori would all agree that children can acquire knowledge on their own, that they are excellent learners. The role of the teacher is to capitalize on what children already know and on their learning strategies and to help them develop more strategies for acquiring more knowledge (Druin, p. 16).

Concept Assessment

Bracken, who had established his interests in early childhood assessment and test construction, developed the Bracken Basic Concept Scale Test in 1984 to measure a subset of children's receptive vocabulary - basic concepts. He felt the need for a cross-cultural test that would provide teachers with an estimate of where each child stands relative to national norms. The test results can also be used to determine whether a child is "at risk" for future educational learning problems. Bracken looked at the assessment instruments that were commonly used in the 1980's, and from those tests he developed a conceptual list along with using preschool and primary grade curriculum materials, and the input of preschool and primary educators (Bracken, 1984).

Bracken defines basic concepts as words that are used to label basic colors, comparatives, directions, materials, positions, quantities, relationships, sequences, shapes, sizes, social or emotional states and characteristics, textures, and time (Bracken, 1984). The Bracken test measures concept attainment in eleven categories: Color, Letter Identification, Numbers/Counting (recognition and counting), Comparisons, Shapes, Direction/Position, Social/Emotional, Size, Texture/Material, Quantity, and Time/ Sequence. It is a diagnostic scale measuring a possible total of 258 concepts. The test minimizes verbal responses enabling students with language difficulties. The Bracken Basic Concept Scale reliability and validity studies were conducted on deaf and hearing students by Bracken and Cato with a significant difference level of .0001. Researchers

McCallum, Breen, Palmer, Heller, and Marsch also compared the Bracken to the Boehm Test of Basic Concepts and the Peabody Picture Vocabulary Test to prove its reliability and validity (Bracken, 1984).

The test is made up of a flip book with pages containing four pictures. The student is to indicate the answer by pointing to one of the pictures. The concepts of Time/Sequence, for example, range in difficulty from #1. "finished," the easiest, (the student is to point to the child that has finished drinking) to #35. "always," the most difficult (the student is to point to what is always in the sky) (Bracken, 1984).

Direct Instruction vs. Computer Enhanced Instruction

Advocates of the direct instructional approach to teaching argue that this approach results in higher test scores. Teachers who use this teaching approach are often slow to incorporate new approaches into their curriculum. Many schools have changed little, and many teachers continue to emphasize the same instructional strategy, lectures, and the same technique, using the chalkboard, as educators in the 1920s. And, unfortunately, students in these classrooms are the ones to suffer because attention has not be paid to individual learning styles.

Experts argue that direct instruction has its place only for low-level learning tasks, but teaching children to think for themselves is definely not a low-level task. Research shows that integrating technology into the early childhood curriculum enhances conceptual learning (Carlson, p. 133-147). If this is indeed the Communication Age, as

many refer to the present time; teachers must pursue the possibility that integrating technology into the classroom may provide an effective tool to promote more effective student centered, cooperative learning.

The government has also shown increased interest and commitment to the National Information Infrastructure (NII). The Goals 2000: Educate America Act is a major initiative to integrate technology into the contect standards and plans of our nation's schools (Barron, p. 3). This school system has directly seen the effect of this through the Connect Ten project that provided a grant to network all county schools by the year 2000.

It is obvious that the teacher is the critical variable in the effectiveness in a computer enhanced classroom (Barron, p. 6). Technology is merely a potentially powerful tool to be implemented into a classroom by a teacher committed to fostering children's learning. The teacher has several roles in a computer- enriched classroom. The teacher must first be the instructor, to guide students through new software and encourage their exploration of the material. The teacher must also be a coach to provide guidance and support as students perform tasks more independently. Next, the teacher must be a model, a visible user of technology, practically integrating this tool in the classroom. And lastly, the teacher must become a critic, selecting challenging and appropriate software and experiences that enhance each student's learning and development (Davis, p. 2-3).

Many studies have been conducted that show definite benefits of computer usage in early childhood education. One such study was performed by Carlson and White (Carlson, p. 133) as they examined the use of a computer program, "Jellybean Hunt" by Edmark to enable kindergarten students to learn the concepts of left and right. All students were pretested, and then the treatment group was exposed to the software for a two week period. The posttest scores indicated a positive effect on the treatment group and that the concepts of left and right were statistically enhanced by the use of computer technology.

Important cognitive gains have been observed in children using educational technology in informal, collaborative learning environments (Mayer, p. 27-31). Successful integration of technology allows the classroom to be a knowledge building, learner centered, interactive classroom that is student centered rather than curriculum centered. Technology provides an excellent platform - a conceptual environment - where children can collect information in multiple formats and then organize, visualize, link, and discover relationships among facts and events. Students can use the same technologies to communicate their ideas to others, to argue and critique their perspectives, to persuade and teach others, and to add greater levels of understanding to their growing knowledge (Sandholtz, p. 176).

Technology and the At-Risk Student

There are sociodemographic risk factors that have been found to be associated with problems in learning after children start school, and these are also correlated with the accomplishments and difficulties children bring with them when they arrive at kindergarten. At least half of the nation's preschoolers are affected by at least one of these factors, and fifteen percent are affected by three or more of them. The factors that were examined in this study were the following: the mother has less than a high school education, the family is below the official poverty line, the mother speaks a language other than English as her primary language, the mother was unmarried at the time of the child's birth, and only one parent is present in the home. This study highlights the challenges that kindergarten teachers face in meeting the needs of these students who are so developmentally diverse. It points to the need for innovative approaches in providing early education services for children from low-socioeconomic circumstances (Zill, p.2).

The Furman University Center of Excellence surveyed outstanding classroom teachers in the Greenville County School District of South Carolina. These educators agree that teachers of low achieving students must utilize a wide range and variety of materials, that these teachers must possess a willingness to try new ideas and to search for new ideas to repeat skills in a challenging way. They acknowledge that low achievers often get bored with traditional approaches, but love using computers (Lehr, p. 56-62).

In an article focusing on underachievement among at-risk minority students, the author states that there is often a mismatch of learning styles and teaching styles and that this mismatch often results in confusion, frustration, and underachievement. Once again an emphasis is being made to include accommodation to student's learning styles, focusing on students' interests, and affirming students as individuals with special needs and concerns (Ford, p. 3).

Computers can be used to match students' paces. They are patient and will hold on to an idea for a long time. They address more complex concepts when the students are ready for them. With computers, students assume responsibility for the learning process and are able to work with more success. The more the students understand the learning process, the better they will use technology. And the better the students use technology, the more learning will take place (Jones, p.3). This encourages all students, by recognizing their own learning styles, to develop and practice higher level thinking skills.

Chapter 3

METHODS AND PROCEDURES

Subjects

This study involves two groups of Kindergarten students. Each classroom consists of approximately eighteen students, all of whom will be at least five years old by September 30, 1999. The study samples are from an inner city elementary school with a population of about 300. The school is a federally funded Title I project school as determined by its free and reduced lunch students. The percentage of students who qualify for free and reduced lunch at this school is 65% which classifies these students as at risk. About one-third of these students are from a federally funded housing project. The classrooms have a low student-teacher ratio in compliance with the Goals 2000. The students are assigned randomly for ethnically balanced classrooms, including both community and project children.

Study Timeline

The Bracken® Basic Concept Scale Test was administered as both the pre and post tests. The pretest was during the fall of the school year and the posttest was given six weeks later.

Experimental Factor

This study involves two Kindergarten classes: the control group that is taught using the traditional, direct instruction approach and the treatment group that

has technology integrated into the curriculum. Experienced teachers teach both groups.

In the Traditional Kindergarten classroom, the teacher follows the county curriculum guide using a direct instruction approach. The room is set up in centers. The children begin each day with group time. The teacher explains the tasks to be accomplished at the centers. There are two computers in this classroom, and these are typically used as a "game" center where the children can explore various software programs on their own after having completed tasks at the other centers. The control teacher has instructed the children in the use of Kid Pix Studio Deluxe®, Sammy's Science House®, Elmo Numbers- Sesame Street®, and the Living Book, Little Monster®.

The other Kindergarten classroom is a Twenty-first Century Classroom. This Kindergarten classroom also follows the county curriculum, but integrates technology into the curriculum. This teacher has been chosen by a written application process to have access to additional technology and multimedia capabilities that the traditional classroom does not have. This classroom has five computer stations. The computers in this classroom are used as tools that can enhance children's learning. The teacher introduces software to the entire group using a big screen TV that displays the computer screen. The students have a chance to ask questions and explore new programs before actually having time to work individually on the computer. The average time on the computers is thirty minutes per student each day. The students can also pair up and work cooperatively on the computers if they so choose. The teacher in this classroom is

available to assist the students with their computer center tasks if needed. By the time the posttest data was collected, this teacher had instructed these students in the use of the following software programs: Reader Rabbit Preschool/Kindergarten® Millie's Math House®, Bailey's Book House®, Zurk's Learning Safari®, Kid Pix®, Math Rabbit®, Sammy's Science House®, Travel the World with Timmy®, Thinking Things I® and Thinking Things II®, Reader Rabbit Reading Ages 4-6®, JumpStart Preschool ® & JumpStart Kindergarten®, Sticky Bear Early Learning®, Busy Town®, and the following Living Books, Dr. Suess ABC®, The Tortoise and the Hare®, Just Grandma and Me®, Little Monster Goes to School®, Bernstein Bears®, Harry and the Haunted House®, Sheila Rae the Brave®, and If You Give a Mouse a Cookie®.

The students in both classrooms were given the Bracken® Basic Skills Concept Scale Test as both a pretest and six weeks later, as the posttest. The test is set up in such a way that the score on the first five subtests is used to estimate the starting items for subtests VI-XI. The examiner then administers test items in reverse order from this point until the student passes three consecutive items. This is referred to as the basal point and the student can be expected to pass the items below that level. The examiner then continues to test the students with items of increasing difficulty until the student misses three consecutive items. This determines the subtest ceilings. Thus, rarely are all 258 concepts tested. This administration procedure allows for an efficient evaluation of a child's conceptual understanding.

The Kindergarten teachers, parents, and students are unaware of the nature of this study.

Statistics

The differences in the Bracken® pretest and posttest mean scores of the two groups will be compared by t-scores at the .05 level of significance. The Bracken® has proven validity and reliability scores.

Chapter 4

RESULTS

Null Hypothesis

There will be no significant difference at the .05 level in the concept age gains in the Traditional Kindergarten Classroom and the Twenty-First Century Kindergarten Classroom.

Results

The data collected by the researcher rejected the null hypothesis that no difference will occur between the posttest Bracken scores of the students who are in a Twenty-First Century Kindergarten classroom (treatment) and the scores of the students in a traditional Kindergarten classroom (control). The data collected from the posttest scores of students in the Twenty-First Century classroom rose significantly compared to the scores of those students who were in the traditional Kindergarten classroom (see Figure 1).

The researcher used the Bracken Basic Concept Scale Test posttest scores to calculate the difference in concept age gains in months between the two Kindergarten groups. The mean gain scores for the treatment group (m= 12.35) were significantly higher than the mean gain scores for the control group (m= 5.17)(see Table 1). This shows that students who participate in computer concentrated Kindergarten classrooms have a greater concept age gain than students enrolled in the traditional Kindergarten classroom.

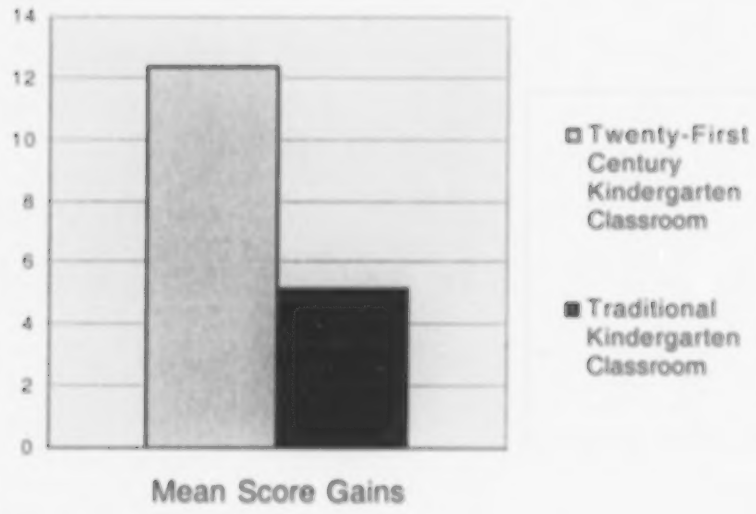

FIGURE 1

Means Scores Comparison for Kindergarten Concept Age Gains

TABLE 1

Comparison of Posttest Means of Control

and Treatment Groups

Groups	N	Mean	Mean Difference	Std. Error of Means	t ratio	Sig 2-tailed
Treatment (Computer)	17	12.35				
			7.19	2.41	2.985	0.005*
Control (Traditional)	18	5.17				

*Significant at the .05 level of Significance

Chapter 5

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

The researcher conducted research in two Kindergarten Classrooms during a six-week period of time to see if there is a significant difference in concept age gains of Kindergarten students in a traditional classroom and Kindergarten students in a Twenty-First Century classroom. This study is important because of the many students who enter school with a concept age well below their chronological age. It is the teacher's responsibility to bridge this gap as quickly and effectively as possible.This study is also important due to the increased focus and funding that our country has put on using new technologies in the classroom.

It is interesting to note that the control group had a higher mean concept age at the pretest (54 months) than the treatment group (50 months) (see Table 2). And all but two, of the thirty five students, had gains during the six-week period.

Conclusions

In testing the null hypothesis, the reseacher looked at the difference in concept age gains of students in a computer enhanced classroom and a traditional Kindergarten classroom. The results of this study clearly indicate a significant increase in student concept age gains when placed in a computer centered classroom. The researcher has concluded that the use of technology at an early stage of concept attainment will greatly

enhance the learning environment, and consequently, significantly increase concept age gains. This information should be of interest to teachers and administrators studying more effective teaching methods.

TABLE 2

Comparison of Pretest Means of Control

and Treatment Groups

Groups	N	Mean	Mean Difference	Std. Error of Means	t ratio	Sig 2-tailed
Control (Traditional)	18	54.17				
			3.81	3.93	.971	.339*
Treatment (Computer)	17	50.35				

*Not Significant at the .05 Level of Significance

Recommendations

The researcher recommends that all Kindergarten students should have access to a computer-based learning approach in addition to traditional centers. Kindergartners quickly learn to use the computer and many software programs. These students show an eagerness to learn when placed at a computer, an eagarness to help each other, an increase in self esteem, in addition to the concept age gains. This research clearly shows that a

significant impact on concept gains can and will occur when technology is creatively incorporated into the kindergarten curriculum.

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APPENDICES

KNOX COUNTY SCHOOLS
ANDREW JOHNSON BUILDING

Dr. Charles Q. Lindsey, Superintendent

November 2, 1999

Ms. Patricia W. Grubb
7601 Konda Drive
Knoxville, Tennessee 37920

Dear Ms. Grubb:

You are granted permission to contact appropriate building-level administrators concerning the conduct of your proposed research study entitled, "A Comparison of Concept Age Gains of Kindergarten Children in Traditional and Twenty-First Century Classrooms." In the Knox County schools final approval of any research study is contingent upon acceptance by the principal(s) at the site(s) where the study will be conducted.

In all research studies names of individuals, groups, or schools may not appear in the text of the study unless *specific* permission has been granted through this office. The principal researcher is required to furnish this office with one copy of the completed research document.

Good luck with your study. Do not hesitate to contact me if you need further assistance or clarification.

Yours truly,

Samuel E. Bratton, Jr

Samuel E. Bratton, Jr., Ed.D.
Coordinator of Research and Evaluation
Phone: (423) 594-1740
Fax: (423) 594-1709

Project No. 018

BEST COPY AVAILABLE

P.O. Box 2188 • 912 South Gay Street • Knoxville, Tennessee 37901-2188 • Telephone (423) 594-1800

Mooreland Heights Elementary
Robbie McGowan, Principal

5315 Magazine Road
Knoxville, TN 37920
(423) 579-2105

Permission to Participate in a Study

I give permission for my child, _____,

to participate in a research study conducted by Patti Grubb to measure concept age gains of Kindergarten students. I understand that my child will not be identified in the research paper in any way.

_____ _____

Parent Signature **Date**